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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Jochen Fassnacht

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KENYON & KENYON LLP
ONE BROADWAY
NEW YORK, NY 10004

EXAMINER

MEYER, JACOB B

ART UNIT

PAPER NUMBER

3618

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,135	Applicant(s) FASSNACHT, JOCHEN	
	Examiner JACOB MEYER	Art Unit 3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The references contained within the information disclosure statement (IDS) submitted on 04/06/2006 are being considered by the examiner. Applicant stated on page 1 of the Remarks filed 07/12/2010, that a courtesy copy of the references would accompany the response. No copies have been received.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 17 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuroda et al (US Pat. No. 6,561,295).

Regarding claim 17, Kuroda discloses a method for regulating a state of charge of an energy accumulator for storing electrical energy in a vehicle having a hybrid drive unit, an internal combustion engine and at least one electrical machine which can be coupled to a power train of the vehicle (Figure 1, column 4), comprising: regulating the state of charge of the energy accumulator as a function of a velocity of the vehicle (see Abstract, Figures).

Regarding claim 24, Kuroda discloses a vehicle, comprising: a hybrid drive unit; a power train; an internal combustion engine; at least one electrical machine that can be coupled to the power train of the vehicle; an energy accumulator for storing electrical energy; and a charge controller for regulating a state of charge of the energy accumulator (Figure 1), wherein the

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charge controller regulates the state of charge of the energy accumulator as a function of a velocity of the vehicle (Abstract, Figures).

4. Claims 17-20, 24-25, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki (US Pat. No. 6,344,732).

Regarding claims 17-20, Suzuki discloses a method for regulating a state of charge of an energy accumulator for storing electrical energy in a vehicle having a hybrid drive unit, an internal combustion engine and at least one electrical machine which can be coupled to a power train of the vehicle (Figure 1), comprising: regulating the state of charge of the energy accumulator as a function of a velocity of the vehicle (at least Figure 5; column 2, line 33 - column 3, line 43); further comprising: lowering a setpoint value of the state of charge with increasing velocity (at least Figure 5); further comprising: lowering the setpoint value of the state of charge by a value that corresponds to a likely charge to be received by the energy accumulator during a deceleration of the vehicle from an instantaneous velocity to a standstill (Figures; column 4, line 11 - column 10, line 18); further comprising: predefining a setpoint value of the state of charge by a characteristic curve that is dependent on the velocity (Figures 2-6).

Regarding claims 24-25 and 27, Suzuki discloses a vehicle, comprising: a hybrid drive unit; a power train; an internal combustion engine; at least one electrical machine that can be coupled to the power train of the vehicle; an energy accumulator for storing electrical energy; and a charge controller for regulating a state of charge of the energy accumulator (Figure 1), wherein the charge controller regulates the state of charge of the energy accumulator as a function of a velocity of the vehicle (at least Figure 5; column 2, line 33 - column 3, line 43); wherein the energy accumulator includes one of a battery and a capacitor, and wherein the

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energy accumulator can be operated with a changeable state of charge (Figures); wherein a measured value of the velocity can be applied to the charge controller (column 4, line 11 - column 10, line 18).

5. Claims 17-21, 24-25, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Murakawa (US Pat. No. 5,469,816).

Regarding claims 17-21, Murakawa discloses a method for regulating a state of charge of an energy accumulator for storing electrical energy in a vehicle having a hybrid drive unit, an internal combustion engine and at least one electrical machine which can be coupled to a power train of the vehicle, comprising: regulating the state of charge of the energy accumulator as a function of a velocity of the vehicle (Abstract, Figures); further comprising: lowering a setpoint value of the state of charge with increasing velocity (at least Figures 15-18); further comprising: lowering the setpoint value of the state of charge by a value that corresponds to a likely charge to be received by the energy accumulator during a deceleration of the vehicle from an instantaneous velocity to a standstill (Figures; column 3, line 20 - column 10, line 24); further comprising: predefining a setpoint value of the state of charge by a characteristic curve that is dependent on the velocity (Figures); further comprising: lowering a setpoint value of the state of charge by a value that is proportional to the velocity (at least Figure 17).

Regarding claim 24-25, 27, Murakawa discloses a vehicle, comprising: a hybrid drive unit; a power train; an internal combustion engine; at least one electrical machine that can be coupled to the power train of the vehicle; an energy accumulator for storing electrical energy; and a charge controller for regulating a state of charge of the energy accumulator (Abstract, Figures), wherein the charge controller regulates the state of charge of the energy accumulator as

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a function of a velocity of the vehicle (Figures; column 3, line 20 - column 10, line 24); wherein the energy accumulator includes one of a battery and a capacitor, and wherein the energy accumulator can be operated with a changeable state of charge (Figures); wherein a measured value of the velocity can be applied to the charge controller (column 3, line 20 - column 10, line 24).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 22-23, 29-33, and 35-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakawa (US Pat. No. 5,469,816).

Regarding claim 22-23, Murakawa discloses the invention except for specifically pointing out further comprising: lowering a setpoint value of the state of charge by a value which is super- proportional to the velocity. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the control routine lowering a setpoint value of the state of charge by a value which is super- proportional to the velocity, since it was well-known to at least have it proportional to the velocity, and therefore the super-proportional relative nature is no more than an obvious result of the operation of the vehicle (Figures of Murakawa); Murakawa in view of the above discussion discloses wherein the setpoint value forms an input variable of a strategy for operating the internal combustion engine and the at least one electrical machine (at least Figures).

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Regarding claims 29 and 35, Murakawa discloses the invention except for specifically pointing out further comprising: delaying the charging of the energy accumulator as the vehicle's velocity increases. It would have been obvious to one having ordinary skill in the art to have incorporated a built-in delay, therefore delaying the charging of the energy accumulator as the vehicle's velocity increases, since it would prevent unnecessary cycling and it is well-known in the art to provide control delays to verify correct operation before performing a task (see description in attached references).

Regarding claims 30 and 36, Murakawa discloses the invention except for specifically pointing out wherein the setpoint value is not lowered when energy for charging the energy accumulator is generated via energy recovery during a downhill drive. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the setpoint value not lowered when energy for charging the energy accumulator is generated via energy recovery during a downhill drive, since such a configuration is well-known in the art to provide optimal charging of the accumulator dependent on driving conditions to maintain an appropriate charge.

Regarding claims 31 and 37, Murakawa discloses the invention further comprising: storing surplus energy in the energy accumulator independently from the velocity (Figures). It is well known in the art to store surplus energy in the energy accumulator independently from the velocity in order to constantly maintain additional charge without the need of a control dependent on velocity.

Regarding claims 32 and 38, Murakawa discloses the invention wherein the setpoint value drops linearly in a predefined velocity range between standstill and an upper limit and is

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then kept constant (at least Figures). Additionally, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the setpoint value drop linearly in a predefined velocity range between standstill and an upper limit and then kept constant, since the linear behavior is a result of the above characteristics of the vehicle accumulator charging routine, and since it is well-known to have maximum and minimum limits set to prevent excessive or undercharging of said accumulator, and a constant setpoint relative to the velocity would be direct result providing optimal charging characteristics for a more energy efficient vehicle.

Regarding claims 33 and 39, Murakawa discloses the invention except for specifically pointing out wherein in a cold start the setpoint value remains constant up to a predefined minimum velocity and drops subsequently to a maximum velocity with increasing slope above a state of charge limit. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have, in a cold start, the setpoint value remain constant up to a predefined minimum velocity and drops subsequently to a maximum velocity with increasing slope above a state of charge limit, since it was well-known in the art (as evidenced by at least Sasaki '571 and Rogers '024) to control the characteristics of the battery charging in such a manner as described above during cold starting so as to provide additional energy when needed on cold start and to later increase the charging capacity.

8. Claims 26, 28, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakawa (US Pat. No. 5,469,816) and further in view of Wakashiro et al (US Pub. No. 2004/0232861) or Verbrugge et al (US Pub. No. 2003/0076109).

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Regarding claims 26, 28, and 34, Murakawa discloses the invention except for specifically pointing out wherein the energy accumulator includes or comprises a NiMH battery. At least Wakashiro and Verbrugge disclose similar vehicle state of charge control configurations for hybrid vehicles wherein the energy accumulator includes or comprises a NiMH battery (at least paragraph [0005] of Wakashiro; paragraph [0022] of Verbrugge). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have incorporated a NiMH battery as in Wakashiro or Verbrugge with the device of Murakawa, since it was well-known to provide NiMH batteries in such applications, and since it would have provided ideal efficiency to the hybrid drive device.

Response to Arguments

9. Applicant's arguments with respect to claims 9-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. At least Sakai, Gardner, Park, Wakashiro '897, Yamada '307, Yamada '112, Dannenberg, Hara, Woestman, Okoshi, Hisada, Sasaki, Rogers '024, and Rogers '459 disclose hybrid vehicles and associated vehicle battery or accumulator charging configurations that disclose numerous aspects of the invention and may be of interest to Applicant.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACOB MEYER whose telephone number is (571)270-3535. The examiner can normally be reached on Monday - Thursday 9am to 7pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. ALLEN SHRIVER can be reached on 571-272-6698. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/J. ALLEN SHRIVER II/

Supervisory Patent Examiner, Art Unit 3618

/J. M./

Examiner, Art Unit 3618